

Prevention of Contamination on Plated Wafer Surfaces

Abstract of the Disclosure

In order to prevent salt precipitation after plating a wafer surface, the described cleaning process applied to the wafer covered with a plating solution uses a complex former solution or the solution of an acid. The presence of a suitable complex former enhances the solubility of heavy metal ions typically by orders of magnitudes. Hereby a precipitation of salts is avoided. After plating, the wafer is necessarily covered with a plating solution. In a first cleaning step, the solution of the complex former is applied on the wafer surface. This procedure reduces the amounts of plating salts in the solution and keeps the solubility of the remaining salts high at the same time due to a formation of soluble metal complexes. After that step, the wafer is completely covered with clean complex solution. This solution is removed in a following step by a stream of de-ionized water, leading to a clean, water-covered wafer. The drying of the wafer can be performed in a conventional procedure (e.g. spin dryer) resulting in a clean, dry wafer. In particular, the following aqueous solutions of different complex formers are applied in various concentrations: Citrate (concentration 0.5–1.0 mol/kg); Acetate (concentration 0.5 mol/kg); EDTA (concentration 0.2–0.5 mol/kg); Ammonia (concentration 0.1–1.0 mol/kg); Hydrochloric acid; Phosphoric Acid.